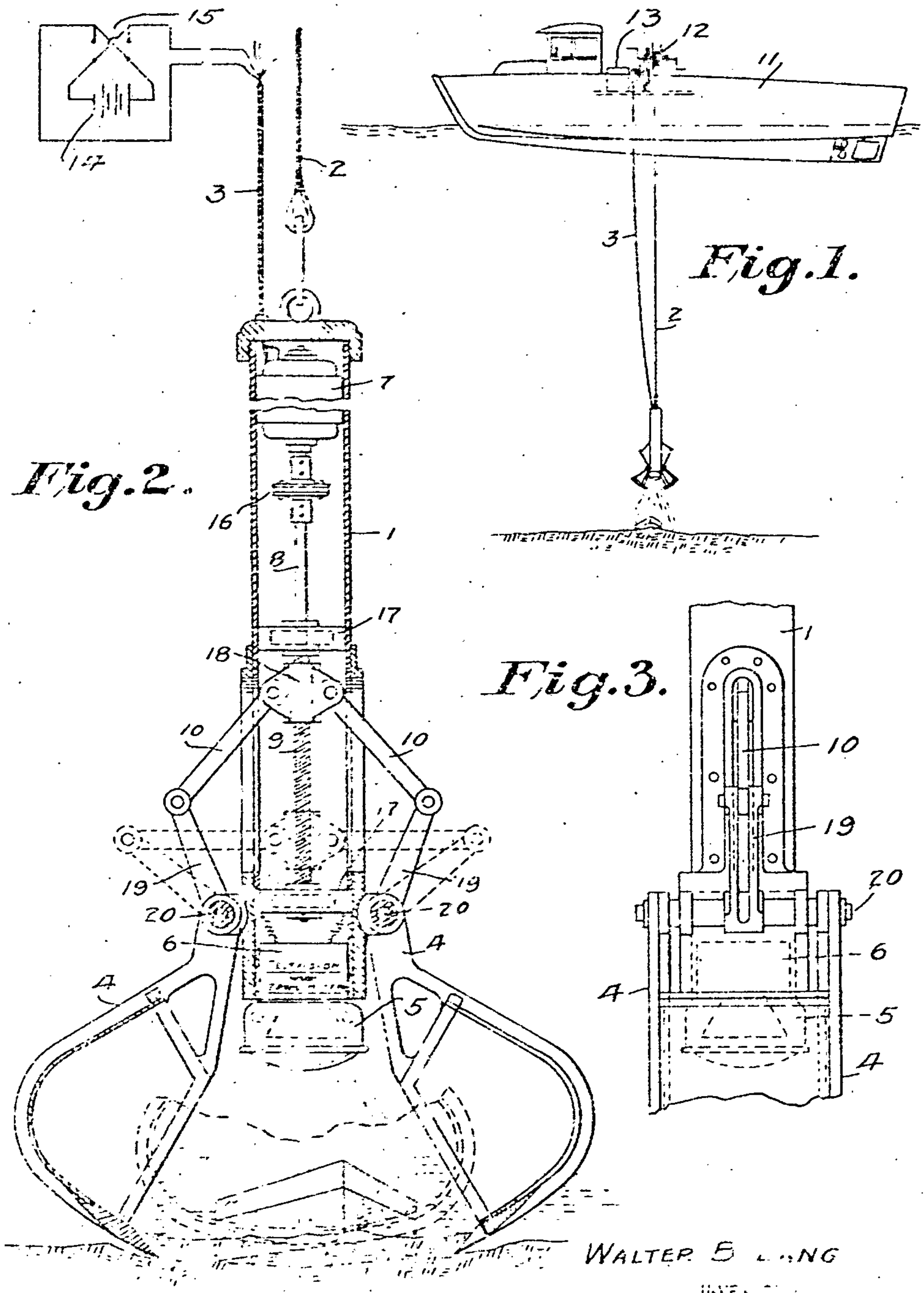
Aug. 8, 1944. W. B. LANG 2,355,086

MARINE SALVAGE DEVICE

Filed Oct. 27, 1943



WALTER B. LANG
INVENTOR
BY [illegible]
ATTORNEY

Patented Aug. 8, 1944 2,355,086

UNITED STATES PATENT OFFICE

2,355,086

MARINE SALVAGE DEVICE

Walter B. Lang, Washington, D. C.

Application October 27, 1943, Serial No. 507,912

1 Claim. (Cl. 294—66.

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government of the United States for governmental purposes without the payment to me of any royalty thereon in accordance with the provisions of the act of April 30, 1928 (Ch. 460, 45 Stat. L. 467).

This invention relates to a marine exploration and salvage device, and more particularly to such a device which can be utilized at extremely great depths beneath the sea.

Heretofore, in marine salvaging operations, it has been necessary for skilled divers to descend to the object being salvaged, and there to attach cables or other lifting devices to such object. The depths at which salvage operations could successfully be carried out thus depended upon the physical resistance of the human divers to the water pressure encountered. By providing armored diving suits, and similar devices, the operations could be carried out at somewhat greater depths, but 400 ft. represents the approximate maximum depth at which salvage operations can now be carried on.

It is an object of the present invention to provide a marine salvage device which does not require the services of skilled deep sea divers. Another object is to provide a deep sea salvage device which can be operated successfully at extremely great depths.

In accordance with the present invention, the difficulties and disadvantages of prior deep sea salvage operations are overcome and there is provided a marine salvage device comprising remotely controlled means for grasping a submerged object combined with a television transmitter positioned to observe objects to be grasped and means for receiving at the surface the transmitted image of the object.

The invention will be made clear by reference to the following description and the accompanying drawing in which:

Figure 1 represents a boat upon the surface employing the salvage device of this invention.

Figure 2 represents a sectional elevation of the device of this invention.

Figure 3 represents an elevation, at right angles to Figure 2, showing toggle and pivoted frame.

In a practical embodiment of the invention, reference is now made to the drawing, in which a rigid casing 1 is provided at the upper end thereof with a supporting cable 2 and a watertight electrical cable 3. At the lower end thereof is positioned a conventional clam-shell type grappel scoop having cooperative jaws 4 hingedly attached to the casing 1. In a pressure resistant watertight housing 5 there is positioned a television transmitter 6 adapted to transmit by the well known means an image of any object found within the field of the open jaws 4 of the grappel scoop. The jaws 4 are actuated at will from the surface of the sea from a source of electric power 14 by closing a reversing switch 15 to energize the reversible electric motor 7 through the watertight cable 3. The electric motor 7 is connected through a suitable flexible coupling 16 to a shaft 8 retained by journals 17 in the casing 1. The shaft 8 has a threaded portion 9 engaging a threaded collar 18 which is in turn hinged to a pair of links 10. The other ends of the links 10 are hinged to a pair of arms 19 keyed to short shafts 20 which are retained by journals on the casing 1. The shafts 20, 20 are also keyed to the jaws 4. Upon actuation of the reversible electric motor 7, the threaded collar moves upwardly or downwardly according to the rotation of the shaft 8 and thus causes the jaws 4 to open or close through the intermediate movement of the links 10, arms 19 and short shafts 20.

In operation, the complete grappel assembly is lowered from the boat 11 by means of a reel 12 to the floor of the sea. Before lowering the salvage device, the television transmitter 6 is activated and the housing 5 is sealed by means not shown. A television receiver 13 conveniently located in the boat 11 thus continuously receives the image of any objects within the range of the grappel scoop. The scoop is preferably raised slightly above the floor of the ocean and the boat cruises about until the desired object is located by the television transmitter. At this point, the scoop with the jaws 4 in the open position is lowered upon the object to be salvaged. The electric motor 7 is then actuated by electric means positioned in the boat 11 to rotate the shaft 8 and screw 9 to cause the links 10 to rock the arms 19 to thereby move the jaws 4 causing them to firmly grasp the object. Thereupon the object is raised to the surface of the sea and recovered.

It will be seen from the foregoing description that a very desirable means has been provided for locating and raising submerged objects to the surface of the ocean or other body of water. The invention is not limited in application to any particular depth, because the depth at which operation can be successfully carried out is limited only by the size and strength of the described device, taking into consideration the size and weight of the object sought to be salvaged.

If desired, auxiliary flood lighting equipment

can be attached to the housing 1, or separately lowered together with the device of this invention. Although the invention has been particularly described in connection with a television transmitter of the conventional radio type, it is equally applicable to a television transmitter of the wired type, the only modification necessary being to connect water-tight wire leads through the cable 3 to the transmitter 8.

Since many apparently differing embodiments of the invention will occur to one skilled in the art, various changes can be made in the details shown and described, without departing from the spirit and scope of this invention.

What is claimed is:

In a marine salvage or exploration device, the combination comprising an elongated casing, a cooperating pair of jaws hingedly secured adjacent one end thereof, a pair of arms attached to said jaws and adapted to open and close the same, a pair of links hingedly connected at their lower ends to said pair of arms and adapted to actuate said arms, a threaded collar positioned inside said casing and hingedly connected to each link, a threaded shaft positioned in said casing in engagement with said collar and adapted to raise and lower the collar, a remotely-controlled reversible electric motor in the upper portion of the casing connected to said threaded shaft, a television transmitter, positioned at the lower end of said casing to transmit an image of an object within the pair of jaws, a water-tight housing for said transmitter, a lift cable for supporting the casing, a source of electric power, a water-proof electric cable for conveying power to said motor, and a television receiver positioned at a distant station for observing an object within the range of the jaws.

WALTER B. LANG.